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PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Karl W. Gallis et al.

Serial Number: 10/677,294

Filed: October 3, 2003

For: **PRECIPITATED SILICA PRODUCT, DENTIFRICES CONTAINING SAME, AND PROCESSES**

Group Art Unit: 1614
Examiner: F. Krass

Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION BY KARL GALLIS UNDER 37 C.F.R. § 1.132

I, Karl W. Gallis, a joint inventor in the above-identified patent application, hereby declare and say as follows:

THAT, I hold the degree of Doctor of Philosophy awarded in Inorganic Chemistry from the University of Vermont in Burlington, Vermont;

THAT, since 2001 I have been employed by the assignee of the above-described patent application, namely J.M. Huber Corporation;

THAT, I am currently working with the Research and Development Division for the Huber Engineered Materials Sector of J.M. Huber Corporation in Havre de Grace, Maryland, where my primary responsibility is developing novel silica products;

THAT, I am fully aware of the technology disclosed in the above-described patent application and I have read and understood the present application, the amended claims, the Office Action mailed on December 6, 2005, and the prior art cited, specifically WO93/23007 ("Pryor").

In an effort to investigate the effect of heat treatment (hereinafter referred to as "calcination") on abrasive precipitated silica products, in accordance with the broad teachings of Pryor, I supervised the analysis of three different commercially available dental abrasive precipitated silica products. These were all available from J.M. Huber Corporation under the tradenames of ZEODENT® 115, 113, and 105. Measurements were made of these silica products as initially synthesized as well as after calcination at 750°C for 2.5 hours. If Pryor's teachings were to hold true for precipitated silica products as well as for his exemplified silica gels, then the cumulative pore areas from pores in excess of 500 Angstroms (m^2/g) should theoretically decrease significantly, or, at least, to the same as now claimed within the patent claims of this pending application. Furthermore, as a result, the CPC Compatibility measurement of such calcined precipitated silica products should significantly increase as a consequence, too. The results obtained showed no such significant change between the synthesized products and the calcined products.

Experiment Followed

The samples of Zeodent® 105, Zeodent® 113 and Zeodent® 115 were heated to 750 °C at a rate of approximately 2°C/min in an oven. They were kept at this temperature for 2.5 hours and were then gradually cooled to room temperature. The heat-treated (calcined) samples and control samples were evaluated by mercury intrusion and tested for CPC compatibility, as outlined by the methods described in the patent application. The results were tabulated as follows:

TABLE

Mercury Intrusion and CPC Compatibility Data

for Uncalcined and Calcined ZEODENT® Silicas

Sample	**Description**	**Cumulative Pore Area from Pores > 500 Å (m^2/g)**	**CPC Compatibility (%)**
Zeodent® 115	As synthesized	24.300	0.53
Zeodent® 115	Heat treated at 750 °C for 2.5 hrs	23.970	0.77
Zeodent® 113	As synthesized	21.642	0.32
Zeodent® 113	Heat treated at 750 °C for 2.5 hrs	20.897	0.09
Zeodent® 105	As synthesized	11.906	0.77
Zeodent® 105	Heat treated at 750 °C for 2.5 hrs	11.338	1.61

Conclusions

It was found that simply heating precipitated silica to elevated temperatures was not sufficient enough to significantly change the CPC Compatibility of the synthesized product. The heating also had very little effect on the Cumulative Pore Area from Pores greater than 500 Å, as measured by mercury intrusion.

Thus, in my opinion, the Pryor reference does not provide a teaching that is applicable to the modification of precipitated silica products through calcinations in terms of pore area and CPC Compatibility.

Further DECLARANT sayeth naught.

All statements made herein of my own knowledge are true, and all statements made on information and belief are believed to be true, and further the statements are made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001, Title 18, of the United States Code, and that such willful false statements may jeopardize the validity of the above-identified application or any patent issued thereon.

Karl W Gallis
Karl W. Gallis

5/4/06
Date

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18 U.S.C. § 1001 Statements or Entries Generally

Whoever, in any matter within the jurisdiction of any department or agency of the united States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing the same to contain any false, factitious, or fraudulent statement or entry shall be fined not more than $10,000 or imprisoned not more than five years, or both.